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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,949	07/19/2005	Guy Zancella	26213	7345
22889	7590	12/03/2008	EXAMINER	
OWENS CORNING			AFTERGUT, JEFF H	
2790 COLUMBUS ROAD			ART UNIT	
GRANVILLE, OH 43023			PAPER NUMBER	
			1791	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,949

Applicant(s)

ZANELLA ET AL.

Examiner

Jeff H. Aftergut

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-37 is/are pending in the application.
- 4a) Of the above claim(s) 23-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-22 and 31-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 23-30 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 24, 2008.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 16, 19-22, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by German Patent 19852159 for the same reasons as expressed in paragraph 3 of the Office action dated May 12, 2008.

With respect to new claims 31 and 32, the translation provided by applicant made clear that German Patent '159 provided for winding the impregnated band after exiting of the pultrusion die without the addition of heat to the band (while it was still hot), as expressed on page 3, lines 4-8 of the translation. Additionally, in Figures 1 and 2 there is no additional pressure or heating application means provided for and one viewing the same would have therefore understood that no such means were necessary to wind upon form 4 subsequent to impregnation with the additional resin material in the die.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 16-22, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent 1985159 in view of Saint Gobain (the internet publication dated July 30, 2001, from the website <http://www.twintex.com/fabrication-processes/tw-process.html>, herein after referred to as Saint Gobain) for the same reasons as expressed in paragraph 5 of the Office action dated May 12, 2008.
6. Claims 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 5 further taken with PCT WO 00/47397 (newly cited).

The references as set forth above in paragraph 5 suggested a uniform cross sectional shape to the finished assembly. Note that keeping constant the amount of reinforcement with exits at the die while varying the amount of molten material (thereby altering the amount of reinforcing material in the finished assembly) would require that the cross sectional shape at the exit of the die must change. The artisan was well aware that in pultrusion it was known to vary the shape at the exit of the die in order to change the cross sectional shape of the end product while altering the reinforcement percentage along the length of the product (by increasing the cross sectional shape at the exit, the material of molten material supplied at the exit must be greater while the reinforcement percentage would decline in the cross sectional portion as more resin was added). The only other way to achieve constant reinforcement while varying the molten material added would have been to provide reinforcement with resin rich regions and resin starved regions at the exit of the die (and this does not seem to be what applicant desires to perform)

PCT '397 expressly taught that it was known at the time the invention was made to vary the amount of reinforcement in the finished cross section by varying the shape of the material at the exit of the die. In other words, the amount of resin added in the pultruded product in the cross section increased and decreased as the size of the die increased and decreased while the amount of reinforcement fed through the die remained constant. Applicant is more specifically referred to page 1, lines 10-18 of the reference. The reference to PCT '397 clearly suggested that varying the strength along the length of the finished assembly was desirable and that one would have achieved the same by varying the cross sectional shape of the pultruded article. Such would have included the application of additional resin in the pultrusion operation (as such would have ensured that the part lacked voids therein) while maintaining the amount of reinforcement in the finished assembly constant. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a variable die which was capable of changing the cross sectional shape in a pultrusion die (which would mandate that one regulate the amount of molten material supplied to the die as the cross sectional size increased one would have had to supply more molten material in order to avoid voids while as the die size decreased one would have reduced the amount of resin supplied in the pultrusion die to prevent excess runoff of the resin out of the die) as taught by PCT WO 00/47397 in the process of making a composite pultruded article in accordance with the techniques of the references as set forth above in paragraph 5.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 33-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicant claims that the amount of reinforcement remains constant while the amount of molten material supplied to the die was varied in order to vary the amount of reinforcement in the cross section of the pultruded part (i.e. varied the amount of resin supplied to the finished assembly while keeping the reinforcement constant in the cross section), however the artisan failed to describe this processing. More specifically, the applicant appears to describe that the amount of second material delivered to the strip may vary at various locations along the cross section of the strip, but never recites that the amount of second material is added is varied while the amount of reinforcement remains constant in order to produce a product which has varied percent reinforcement along the length of the product (at various points in cross section of the part). As such, the claims recite subject matter not in applicant's possession at the time the application was filed. As discussed above, the only manner with which this can be performed would

have been to vary the shape of the die at the exit and there is no description as to how applicant performed the same.

Response to Arguments

9. Applicant's arguments filed 8-1-08 have been fully considered but they are not persuasive.

The applicant argues in response to the rejection under 35 USC 102 that the reference to DE '159 failed to teach heating a composite strip prior to impregnation of the same, the use of a composite strip in the operation, or the use of a die in the process. This has not been found to be persuasive. To begin with, there is no question that the material fed into the die is a blend of thermoplastic material and reinforcing material. Additionally, the material fed into the die 6 included materials in the form of a fabric (rather than as a single thread) and a fabric is clearly a strip of material. Additionally, the material is fed into the heated die 6 (sheathing nozzle 6 which tapers down at the exit of the die). Applicant is referred to the paragraph bridging pages 2 and 3 of the translation for a discussion of the composite fibers and the sheathing die 6 which tapers down. The applicant is also referred to page 4, lines 14-15 of the translation where it describes the use of a "heated sheathing nozzle", clearly suggesting that the nozzle in the operation was heated, Heating the nozzle as depicted in Figure 2 clearly resulted in the heating of the strip of material prior to contact of the strip with the melt from the extruder at the initial portion of the die.

The applicant argues that the reference to DE '159 failed to teach that one skilled in the art would have assembled the continuous strands in parallel into at least one

layer as required of claim 19. The applicant is advised that the reference suggested that one assemble the fibers into a fabric which is typically one layer of material wherein the fibers all lie in the same plane (the warp being parallel to the direction of the pultrusion operation). The applicant argues that the reference failed to teach heating above the melting point of the plastic material. It should be noted that the extruded material was fed to the heated sheathing die in a molten state and that the plastic introduced in the die could be the same material which was present in the fibers of the reinforcement (the thermoplastic component of the same). If one presumes that the die was maintained at a temperature to keep the molten material molten (which is a reasonable assertion), then the plastic of the fabric strip introduced into the die would have been in a molten state after introduction into the heated sheathing die.

Regarding claim 20, applicant argues that the reference does not teach heating the thread product up to the extruder and that the reference does not feed a strip. This has not been found to be persuasive for the same reasons as expressed above. Namely, one skilled in the art would have understood that the sheathing nozzle (die 6) was heated and that introduction of the fabric (a strip) into the die would have heated the same at the entrance of the die prior to the introduction of the extruded material to the strip. Since the sheathing pultrusion nozzle 6 was stated to have been heated, clearly the strip was kept at a temperature as far as the die. Applicant's arguments regarding claim 20 have not been found to be persuasive.

Regarding claim 21, note that those skilled in the art would have applied a specific amount of reinforcement to the end product as a function of the strength one

desired in the end product and that thus over varying lengths of product the amount of reinforcement in the finished lengths varied as a function of what the customer desired for the finished end product. In other words, for some pultruded articles one desired a finished assembly having 50% reinforcement therein while for others one might desire 40 % reinforcement. Making the same would merely require feeding of a strip material having less reinforcement therein and one skilled in the art would have performed such processing in DE '159.

Regarding claim 22, note that the second material (the thermoplastic material) was introduced into the sheathing nozzle in DE '159 after being fed through the extruder therein. Applicant's argument to the contrary has not been found to be persuasive.

Regarding the rejection under 35 USC 103, the applicant argues that the reference to DE '159 failed to teach a strip and failed to teach that one would have heated the strip prior to impregnation of the same. This has not been found to be persuasive as discussed above. Note that the reference suggested that one skilled in the art would have fed a strip (a fabric) to the sheathing nozzle and that the sheathing nozzle (which was the pultrusion device in DE '159) was heated in the process. Note that Saint Gobain clearly suggested that those skilled in the art of pultrusion would have preheated the commingled material prior to entrance into the pultrusion nozzle or die. Clearly, one skilled in the art would have understood that the material would have been preheated prior to introduction into the die. As discussed above, DE '159 clearly taught that one skilled in the art would have wound the strip upon a mandrel after passing through the nozzle and that the material strip which was wound did not have any heat or

pressure added thereto. The reference to Saint Gobain clearly provided a strip as the fibers of commingled material were brought together and fed under and over a plurality of impregnation bars prior to introduction into the extruder as depicted. Clearly, passing the tensioned fibers under and over the bars in the manner directed would have provided a strip for feeding into the extruder/pultrusion device therein. As noted above DE '159 clearly taught the winding of the strip after the impregnation in the pultrusion/sheathing nozzle.

The applicant argues that the combination did not teach all of the limitations, however the references clearly suggested the same as discussed above and one skilled in the art would have preheated the material prior to passing into the sheathing die in order to ensure adequate melting and impregnation of the reinforcement in the extrusion mechanism. Regarding claims 19-22, 31, and 32, the references suggested these limitations for the reasons noted above. It should be noted that Saint Gobain made it clear that one would have fed a heated strip to the nozzle in DE '159 and thus, the requirements of performing the same were clearly suggested by the references.

The applicant also argues that claim 17 is not taught as the reference to Saint Gobain did not teach a strip. As noted above, feeding of a strip to the extruder/pultrusion die was known as suggested by DE '159 and the feeding of the commingled material under and over the rollers after preheating would have formed the fibers into a strip which was fed into the die in Saint Gobain as discussed above.

Regarding claim 18, the applicant argues that the Office is reading desired properties into the finished end product. Applicant is advised that one clearly would not

have desired a high void content in the pultruded end product and that the use of thermoplastic commingle fibers as part of the matrix would have ensured better contact of the thermoplastic resin with the reinforcement in the finished end product. As all the plastic material was melted and the material as fed through the tapering die after addition of the extruded plastic, one would have expected minimal void content in the finished assembly. Since the prior art performed the same processing as performed by applicant, it would have been reasonable to assume that the finished assembly would have had the same final void content in the finished end product.

Regarding claim 19, as discussed above, the reference to Saint Gobain clearly suggested that one skilled in the art would have preheated the material prior to entrance into the extrusion die. The applicant argues the reference did not assemble the fibers into at least one layer, however as the fibers were fed under and over the rollers in the impregnation device, they clearly were assembled into a single layer of material. The strand additionally are all parallel to one another. Applicant's arguments against Saint Gobain are therefore not persuasive.

Regarding claim 20, applicant argues that the reference did not teach or suggest heating the strip above the melting point. Impregnation will not take place unless one preheats above the melting point in Saint Gobain. Additionally, as discussed above, the reference to DE '159 suggested that one skilled in the art would have heated the strip and one would have does so above the melting point of the plastic fibers in the strip for the reasons identified above.

Regarding claim 21, see the discussion above regarding the amount of reinforcement present in the finished assembly as it relates DE '159. Regarding claim 22, note that the die in DE '159 tapered down and that the second material was fed into the die from an extruder and thus the material was clearly conditioned in an extruder.

As discussed above, the newly presented claims (where the amount of resin added at the extruder was varied while the amount of reinforcement remained constant) was suggested by PCT '397. No claims are allowed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. UK 2,041,489 taught that one skilled knew how to change the cross sectional shape of the die in a pultrusion operation. Japanese Patent 2001-113550 and Dubalme et al suggested that one skilled in the art would have formed a strip via the passing a flat band of the filaments over and under rollers to impregnate them. O'Connor suggested preheating within the die prior pultrusion in the die with a thermoplastic polymer. Vane suggested addition of reinforcement where desired in a pultrusion reinforcing material prior to pultrusion.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:30-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff H. Aftergut/

Art Unit: 1791

Primary Examiner
Art Unit 1791

JHA

December 1, 2008